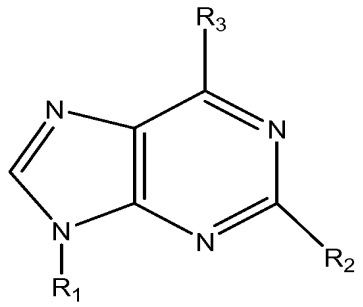
Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-10 (Cancelled)

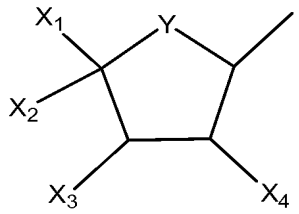
11 (Currently Amended). A method for treating an individual suffering from multiple sclerosis (MS) comprising administering to said individual an A3 adenosine receptor agonist (A3RAg) wherein said A3RAg is a compound within the scope of the general formula (I):



(I)

wherein,

- $\mathbf{R_1}$ represents an alkyl, hydroxyalkyl, carboxyalkyl or cyanoalkyl or a group of the following general formula (II):



(II)

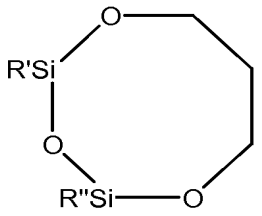
in which:

- **Y** represents an oxygen, sulfur or CH_2;
- $\mathbf{X_1}$ represents H, alkyl, $R^aR^bNC(=O)$- or HOR^c-, wherein

- R^a and R^b may be the same or different and are hydrogen, alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, or cycloalkyl or are joined together to form a heterocyclic ring containing two to five carbon atoms; and
- R^c is alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, or cycloalkyl;

- X_2 is H, hydroxyl, alkylamino, alkylamido or hydroxyalkyl;

- X_3 and X_4 represent independently hydrogen, hydroxyl, amino, amido, azido, halo, alkyl, alkoxy, carboxy, nitrilo, nitro, trifluoro, aryl, alkaryl, thio, thioester, thioether, -OCOPh, or -OC(=S)OPh or both X_3 and X_4 are oxygens connected to >C=S to form a 5-membered ring, or X_2 and X_3 form the ring of formula (III):



(III)

where R' and R'' represent independently an alkyl group;

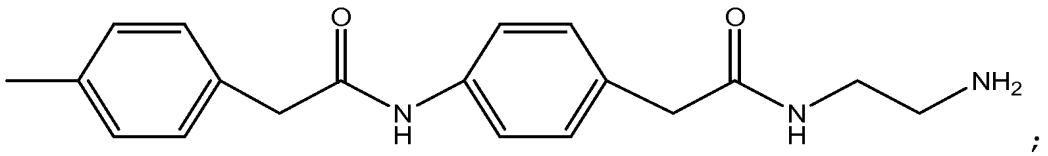
- R_2 is hydrogen, halo, alkylether, amino, hydrazido, alkylamino, alkoxy, thioalkoxy, pyridylthio, alkenyl, alkynyl, thio, or alkylthio; and

- R_3 is a group of the formula $-NR_4R_5$, wherein

- $\mathbf{R_4}$ is a hydrogen atom or alkyl, substituted alkyl or aryl-NH-C(Z)-, with **Z** being O, S, or NR^a with $\mathbf{R^a}$ having the above meanings;

with the proviso that when $\mathbf{R_4}$ is hydrogen then

- $\mathbf{R_5}$ is an R- or S-1-phenylethyl, benzyl, phenylethyl or anilide group, unsubstituted or substituted in one or more positions with a substituent that is alkyl, amino, halo, haloalkyl, nitro, hydroxyl, acetoamido, alkoxy, or sulfonic acid or a salt thereof; benzodioxanemethyl, furfuryl~~fururyl~~, L-propylalanylaminobenzyl, β-alanylaminobenzyl, T-BOC-β-alanylaminobenzyl, phenylamino, carbamoyl, phenoxy or cycloalkyl; or $\mathbf{R_5}$ is a group of the following formula:



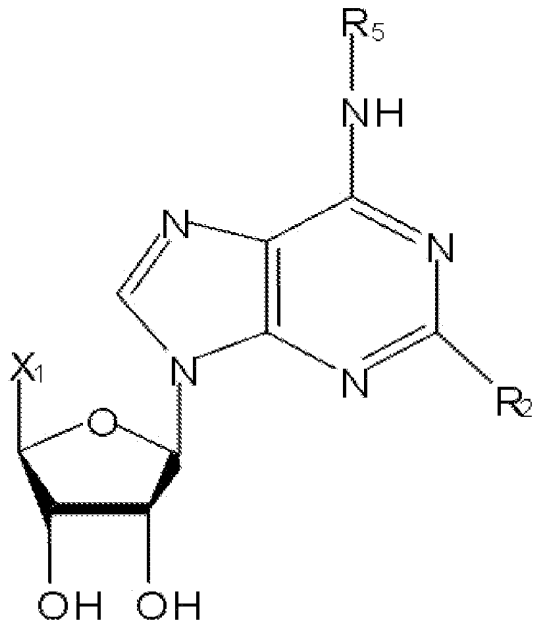
;

~~And~~ and with the further proviso that when $\mathbf{R_4}$ is an alkyl or aryl-NH-C(Z)-, then, $\mathbf{R_5}$ is heteroaryl-NR^a-C(Z)-, heteroaryl-C(Z)-, alkaryl-NR^a-C(Z)-, alkaryl-C(Z)-, aryl-NR-C(Z)- or aryl-C(Z)-, **Z** representing an oxygen, sulfur or imine;
or a physiologically acceptable salt of the above compound.

12. (Currently Amended) The method of Claim 11, wherein said A_3RA_g is orally administered.

13 (Cancelled).

14 (Currently Amended). The method of claim 11, wherein said A_3RA_g is a nucleoside derivative of the general formula (IV):



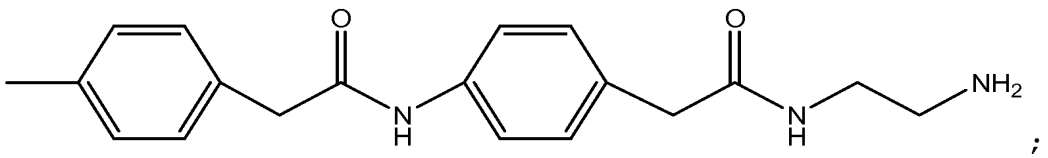
(IV)

wherein,

- X_1 represents H, alkyl, $R^aR^bNC(=O)$- or HOR^C-, wherein
  - R^a and R^b may be the same or different and are hydrogen, alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, or cycloalkyl or are joined together to form a heterocyclic ring containing two to five carbon atoms; and
  - R^c is alkyl, amino, haloalkyl, aminoalkyl, BOC-aminoalkyl, or cycloalkyl;

- $\mathbf{R_2}$ is hydrogen, halo, alkylether, amino, hydrazido, alkylamino, alkoxy, thioalkoxy, pyridylthio, alkenyl, alkynyl, thio, or alkylthio; and

- $\mathbf{R_5}$ is an R- or S-1-phenylethyl, benzyl, phenylethyl or anilide group, unsubstituted or substituted in one or more positions with a substituent that is alkyl, amino, halo, haloalkyl, nitro, hydroxyl, acetoamido, alkoxy, or sulfonic acid or a salt thereof; benzodioxanemethyl, fururyl, L-propylalanylaminobenzyl, β-alanylaminobenzyl, T-BOC-β-alanylaminobenzyl, phenylamino, carbamoyl, phenoxy or cycloalkyl; or $\mathbf{R_5}$ is a group of the following formula:



;

and physiologically acceptable salts of said nucleoside derivative.

15 (Previously Presented). The method of Claim 11, wherein said A3RAg is N^6-2- (4-aminophenyl)ethyladenosine (APNEA), N^6-(4-amino-3-iodobenzyl) adenosine- 5'-(N-methyluronamide) (AB-MECA), N^6-(3-iodobenzyl)-adenosine-5'-N-methyluronamide (IB-MECA), or 2-chloro-N^6-(3-iodobenzyl)-adenosine-5'-N-methyluronamide (Cl-IB-MECA).